

## CLAIMS

I claim:

1. A method of dynamically controlling a compute environment, the method comprising:
  - attaching a trigger to a scheduling object; and
  - firing the trigger based on a trigger attribute, wherein the compute environment is modified by actions initiated when the trigger is fired.
2. The method of claim 1, wherein the compute environment is one of a compute farm, a cluster and a grid.
3. The method of claim 1, wherein modifying the compute environment comprises at least one of modifying interfaces, sending a notification, destroying or modifying the object, adjusting policies, setting variables, creating files, executing scripts, provisioning nodes and utilizing a resource management service.
4. The method of claim 1, wherein the scheduling object is at least one of a job, a reservation for compute resources, a node, a user, a group of users, an administrator, an account, a QOS, a peer service, a class, a partition, a scheduling object and a cluster.
5. The method of claim 1, wherein the trigger attribute is one of an event type, a timeout, an offset time, an action, a dependency, an action argument, a trigger state, an arbitrary input or output variable, a re-arm time, a time-out and a duration.
6. The method of claim 5, wherein if the trigger attribute is an event type, the event type is one of: the creation of the object, the starting, execution, modification, detection of failure, cancellation or termination of the object or an object state.
7. The method of claim 1, wherein modifying the compute environment when the trigger is fired further comprises utilizing data from the fired trigger to fire a second trigger.
8. The method of claim 7, wherein the data from the fired trigger relates setting variables causes the second trigger to fire.
9. The method of claim 7, wherein the data from the fired trigger can further cause a plurality of triggers to fire.
10. The method of claim 7, wherein the data relates to one of a threshold, a re-arm time, a time-out parameter and a duration.

11. The method of claim 1, wherein the action initiated when the trigger fires comprises obtaining data from a remote source.
12. The method of claim 1, wherein the remote source is the Internet.
13. The method of claim 1, wherein the action initiated when the trigger fires comprises updating a database.
14. The method of claim 1, wherein the action initiated when the trigger fires is based on a dynamic variable received via an argument list.
15. The method of claim 1, wherein the trigger attribute is a threshold value.
16. The method of claim 15, wherein the threshold value relates to one of: a quality of service, a queue time being exceeded and system performance.
17. The method of claim 16, wherein system performance is related to at least one of CPU load, disk activity, network usage and memory usage.
18. The method of claim 15, wherein the threshold value relates to one of: individual user parameters, group parameters, job parameters, administrative parameters and credentials.
19. A method of dynamically modifying a compute environment having at least one node, the method comprising:
  - attaching a arbitrary and user-customizable trigger to a node within the compute environment;
  - monitoring activities at the node via a node monitor;
  - upon detection of a specific activity at the node, firing the trigger to modify an attribute of the node.
20. The method of claim 19, wherein the attribute of the node comprises one of the node's priority and state.
21. The method of claim 19, wherein the node monitor monitors for local activity comprising at least one of mouse activity, keystrokes, and high levels of memory, network or CPU usage.
22. The method of claim 19, wherein firing the trigger to modify the node's attribute further comprises reducing a probability that the node will not be selected for a batch work load.

23. A method of dynamically modifying a compute environment having at least one node, the method comprising:
  - associating a trigger to at least one user;
  - monitoring activities of the at least one user associated with a threshold parameter; and
  - upon detecting that the monitored activities of the at least one user fail to pass the threshold parameter, firing the trigger to modify the compute environment to attempt to enable the modified compute environment to accommodate the at least one user's activities at the threshold parameter.
24. The method of claim 23, wherein the threshold parameter relates to credentials of the at least one user.
25. The method of claim 23, wherein the threshold parameter relates to group credentials of the at least one user.
26. The method of claim 23, wherein if the threshold parameter is a performance threshold parameter.
27. The method of claim 23, further comprising, when the trigger fires, sending a notification to a compute environment administrator indicating the failure of the compute environment to pass the threshold parameter.
28. The method of claim 23, further comprising, when the trigger fires, adjusting a priority of jobs submitted by the at least one user to increase a probability that the at least one user's activities will pass the threshold parameter.
29. A system for dynamically controlling a compute environment, the system comprising:
  - a module configured to attach a trigger to an object; and
  - a module that fires the trigger based on a trigger attribute, wherein the compute environment is modified by actions initiated when the trigger is fired.
30. A system of dynamically modifying a compute environment having at least one node, the system comprising:
  - a module configured to attach a trigger to a node within the compute environment;
  - a module configured to monitor activities at the node;
  - a module configured to fire the trigger to modify an attribute of the node upon detection of a specific activity at the node.

31. A computer-readable medium storing instructions for controlling a computing device to dynamically control a compute environment, the instructions comprising the steps:
  - attaching a trigger to an object; and
  - firing the trigger based on a trigger attribute, wherein the cluster environment is modified by actions initiated when the trigger is fired.
32. A computer-readable medium storing instructions for controlling a computing device to dynamically control a compute environment, the instructions comprising the steps:
  - attaching a trigger to a node within the compute environment;
  - monitoring activities at the node via a node monitor;
  - upon detection of a specific activity at the node, firing the trigger to modify an attribute of the node.
33. A computer-readable medium storing instructions for controlling a computing device to dynamically control a compute environment, the instructions comprising the steps:
  - associating a trigger to at least one user;
  - monitoring activities at the at least one user associated with a threshold parameter; and
  - upon detecting that the monitored activities of the at least one user fail to pass the threshold parameter, firing the trigger to modify the compute environment to attempt to enable the modified compute environment to accommodate the at least one user's activities at the threshold parameter.